



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

NOTES ON THE ANATOMY OF ECHIDNA HYSTRIX.

BY HENRY C. CHAPMAN, M. D.

The specimen of *Echidna hystrix* upon which the following observations were made, lived in the gardens of the Zoological Society of Philadelphia about six weeks, spending most of its time entirely covered by the six inches of earth at the bottom of the cage. Its habit of feeding was similar to that of the ant-eaters, the tongue (Pl. XIV, 2) being slender and projected through the maxillary opening to the extent of about three inches. Under the artificial conditions of confinement it appeared sluggish. During life it was noticed that the position of the feet was such as to project the big toe outward, the soles being turned upward and backward.

A thick panniculus carnosus muscle covered the whole animal. A long slender muscle arose from the lower ribs on each side and was inserted in the soles of the anterior feet while a corresponding muscle arose from the tuberosity of the ischium to be inserted in the calcaneum. Otherwise there was nothing unusual about the muscles of the extremities. Those of the fore limbs were, however, enormously developed.

The salivary glands, (Plate XIV, fig. 2, s,) were of large size, two inches in length, with well developed ducts which terminated by small openings in the floor of the mouth. The small intestines were one hundred and two inches and the large, fifteen inches in length. The latter terminated in the cloaca (Pl. XV, fig. 2, c.) At the union of the small with the large intestines a short vermiform appendix was observed. The mucous membrane of the intestines was smooth throughout its entire tract, no valvulae conniventes being observed as in *Orin thorhynchus*. Peyer's patches were well developed in the small intestines.

Three vena cavae were present, two anterior and one posterior as in marsupials. Reta mirabile were observed in the iliac and brachial veins. The blood corpuscles were $\frac{1}{3000}$ of an inch in diameter, the blood itself being loaded with quadrilateral crystals.

The spleen (Pl. XV, 1.) was a triangular gland. The liver was four lobed and was provided with a large gall bladder. The pancreas was well developed, its duct, contrary to the usual arrangement, passing into the intestine at a point nearer the pyloric orifice than the bile duct. The kidneys (Pl. XV, 2, k.) were of equal size. The

two ureters passed into the urogenital canal, the bladder opening into the latter separately, as did also the vasa deferentia from the testicles. While the anterior extremity of the urogenital canal thus received the openings of the bladder, the ureters and the spermatic ducts, it divided at its posterior extremity into two passage-ways, the posterior of which led into the cloaca, the anterior into the peneal urethra.

The penis lay next to the wall of the cloaca and was attached thereto by fibrous tissue, the posterior ends being free and unattached to the pelvis. The glands were composed of four mammiloid processes provided with minute papillae. The posterior orifice of the urethra was probably pushed during coition towards the orifice of the spermatic ducts so as to form a continuous canal with the latter, thus preventing the escape of semen into the cloaca. No trace of a mammary gland was found.

The brain (Pl. XIV, 1) differed from that of *Ornithorhynchus* in being much convoluted. As regards the corpora quadrigemina, the nates were well developed but the lines of demarcation between them and the testes and between the testes themselves were very obscure. The corpus callosum was developed only in its anterior portion. The thalamus opticus and hippocampus major were remarkably prominent.

A little spur was present on the calcaneum as in *Ornithorhynchus*, but the gland and duct with which it communicated were much smaller and placed not so high up on the leg as in the latter. As this spur was present only in the male it may be a sexual appendage. The animal had been observed by Mr. A. E. Brown, the superintendent of the garden, to clean its spines by means of its hind limbs, and the secretion of oil from the gland which is discharged through the spur may merely assist in this process.

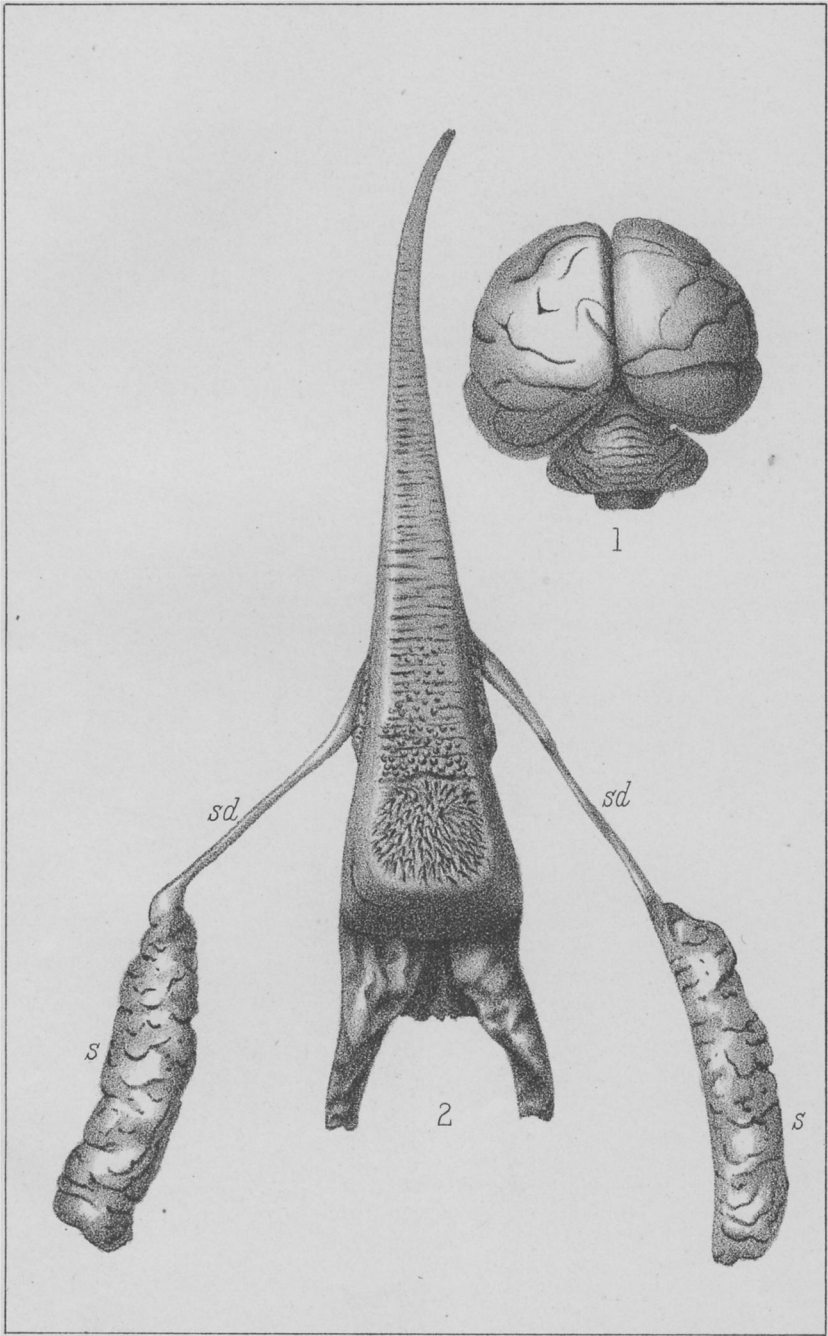
NOVEMBER 1, 1887.

MR. JOHN H. REDFIELD, in the chair.

Twenty-seven persons present.

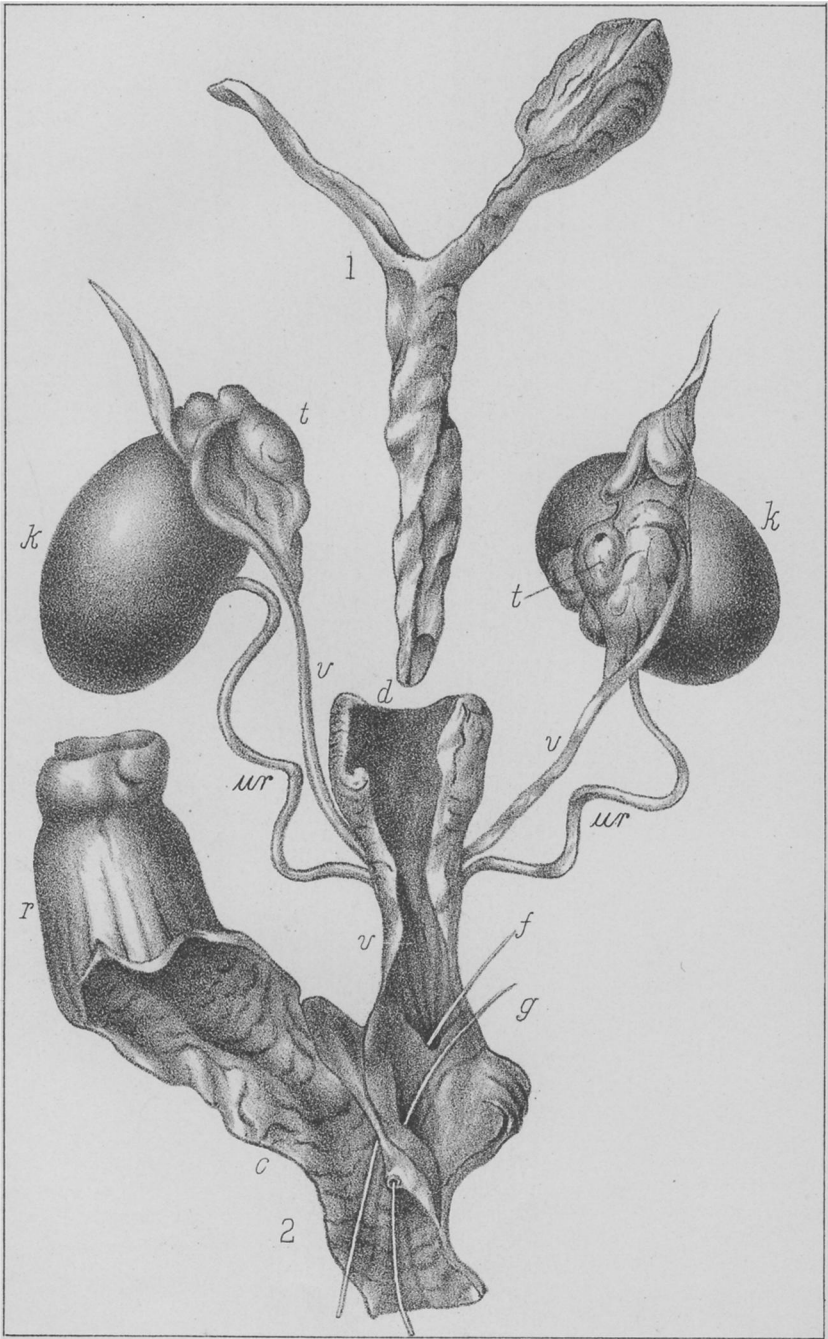
The death of Frederick Graf Marshall, a correspondent, was announced.

Note on the Sense of Direction in a European Ant, Formica rufa.—Dr. Henry C. McCook remarked that during the summer he had made an observation upon the well known "horse ant", or



E. J. N. Del.

Chapman on Echidna.



E. J. N. Del.

Chapman on Echidna.